CLAIMS

1. An information processing device that decodes a multiplexed stream which includes a data stream constituted by a plurality of source packets each having a transport packet and its arrival time stamp, and in which a second picture, which is the first picture of a second multiplexed stream, is connected to a first picture, which is the last picture of a first multiplexed stream so as to be reproduced seamlessly, comprising:

output means for outputting the source packets according to the arrival time stamp of the multiplexed stream;

a video buffer for buffering video data included in the source packets;

an audio buffer for buffering audio data included in the source packets;

video decoding means for decoding the video data buffered in the video buffer; and

audio decoding means for decoding the audio data buffered in the audio buffer, wherein

the audio buffer having a capacity capable of buffering the audio data corresponding to the time required for inputting the second picture to the video buffer.

2. The information processing device according to claim 1, wherein EBn_max = (I_max/Rv) × Ra is satisfied, where EBn_max (bits) is a capacity

required for the audio buffer; I_max (bits) is a bit amount of the second picture, Rv (bps) is an input bit rate to the video buffer, and Ra (bps) is a bit rate of audio data.

3. The information processing device according to claim 1, wherein the second picture is an intra-frame encoded image.

4. The information processing device according to claim 1, wherein the audio buffer has a capacity capable of buffering the audio data corresponding to at least 100 milliseconds.

5. The information processing device according to claim 1, wherein the multiplexed stream satisfies $STC2^2_{start} > STC2^1_{end}$, where STC_delta is a time difference between presentation end time of the first picture on the time axis of the first multiplexed stream and presentation start time of the second picture on the time axis of the second multiplexed stream, $STC2^1_{end}$ (= $STC1^1_{end}$ − STC_delta) is a value obtained by converting $STC1^1_{end}$, which is the value on the time axis of the first multiplexed stream at which the last byte of the last packet of the first multiplexed stream is output from the output means, into the value on the time axis of the second multiplexed stream using the time difference STC_delta, and $STC2^2_{start}$ is the value on the time axis of the second multiplexed stream at which the first byte of the first source packet of the second multiplexed stream is output from the output means.

6. The information processing device according to claim 1, wherein the

multiplexed stream satisfies $STC2^2_{start} > STC2^1_{end} + delta1$, where STC_delta is a time difference between presentation end time of the first picture on the time axis of the first multiplexed stream and presentation start time of the second picture on the time axis of the second multiplexed stream, $STC2^1_{end}$ (= $STC1^1_{end}$ – STC_delta) is a value obtained by converting $STC1^1_{end}$, which is the value on the time axis of the first multiplexed stream at which the last byte of the last packet of the first multiplexed stream is output from the output means, into the value on the time axis of the second multiplexed stream using the time difference STC_delta, and $STC2^2_{start}$ is the value on the time axis of the second multiplexed stream at which the first byte of the first source packet of the second multiplexed stream is output from the output means, wherein after a lapse of a predetermined time delta1 after the last source packet of the first multiplexed stream has been output from the output means, the first source packet of the second multiplexed stream is output from the output means.

7. The information processing device according to claim 1, wherein

assuming that STC_delta is a time difference between presentation end time of the first picture on the time axis of the first multiplexed stream and presentation start time of the second picture on the time axis of the second multiplexed stream, and after a lapse of a predetermined time ATC_delta after the output of the last source packet of the first multiplexed stream has been started, the first source packet of the second multiplexed stream is output from

the output means,

the predetermined time ATC_delta is so determined as to satisfy the time difference STC_delta, and the multiplexed stream is so formed as to satisfy the time difference STC_delta.

8. The information processing device according to claim 7, wherein the predetermined time ATC_delta is managed as attachment information of the first multiplexed stream.

9. The information processing device according to claim 1, wherein audio data included in the first and second multiplexed stream is multi-channel audio data.

10. An information processing method that decodes a multiplexed stream which includes a data stream constituted by a plurality of source packets each having a transport packet and its arrival time stamp, and in which a second picture, which is the first picture of a second multiplexed stream, is connected to a first picture, which is the last picture of a first multiplexed stream so as to be reproduced seamlessly, comprising:

a step of outputting the source packets according to the arrival time stamp of the multiplexed stream;

a step of buffering video and audio data included in the source packets in video and audio buffers, respectively; and

a step of decoding the video and audio data buffered in the video and

audio buffers, wherein

in the buffering step, the audio data corresponding to the time required for inputting the second picture to the video buffer is buffered in the audio buffer before the second picture is buffered in the video buffer.

11. The information processing method according to claim 10, wherein EBn_max = (I_max/Rv) × Ra is satisfied, where EBn_max (bits) is a capacity required for the audio buffer; I_max (bits) is a bit amount of the second picture, Rv (bps) is an input bit rate to the video buffer, and Ra (bps) is a bit rate of audio data.

12. A program allowing a computer to decode a multiplexed stream which includes a data stream constituted by a plurality of source packets each having a transport packet and its arrival time stamp, and in which a second picture, which is the first picture of a second multiplexed stream, is connected to a first picture, which is the last picture of a first multiplexed stream so as to be reproduced seamlessly, comprising:

a step of outputting the source packets according to the arrival time stamp of the multiplexed stream;

a step of buffering video and audio data included in the source packets in video and audio buffers, respectively; and

a step of decoding the video and audio data buffered in the video and audio buffers, wherein

in the buffering step, the audio data corresponding to the time required for inputting the second picture to the video buffer is buffered in the audio buffer before the second picture is buffered in the video buffer.

13. The program according to claim 12, wherein

EBn_max = (I_max/Rv) × Ra is satisfied, where EBn_max (bits) is a capacity required for the audio buffer; I_max (bits) is a bit amount of the second picture, Rv (bps) is an input bit rate to the video buffer, and Ra (bps) is a bit rate of audio data.

14. A computer-readable recording medium that records a program allowing a computer to decode a multiplexed stream which includes a data stream constituted by a plurality of source packets each having a transport packet and its arrival time stamp, and in which a second picture, which is the first picture of a second multiplexed stream, is connected to a first picture, which is the last picture of a first multiplexed stream so as to be reproduced seamlessly, comprising:

a step of outputting the source packets according to the arrival time stamp of the multiplexed stream;

a step of buffering video and audio data included in the source packets in video and audio buffers, respectively; and

a step of decoding the video and audio data buffered in the video and audio buffers, wherein

in the buffering step, the audio data corresponding to the time required for inputting the second picture to the video buffer is buffered in the audio buffer before the second picture is buffered in the video buffer.

15. The recording medium according to claim 14, wherein

EBn_max = (I_max/Rv) × Ra is satisfied, where EBn_max (bits) is a capacity required for the audio buffer; I_max (bits) is a bit amount of the second picture, Rv (bps) is an input bit rate to the video buffer, and Ra (bps) is a bit rate of audio data.

16. A recording medium that records a multiplexed stream which includes a data stream constituted by a plurality of source packets each having a transport packet and its arrival time stamp, wherein

the multiplexed stream is formed such that a second picture, which is the first picture of a second multiplexed stream, is connected to a first picture, which is the last picture of a first multiplexed stream so as to be reproduced seamlessly, the first and second multiplexed stream can be input to a decoder based on their respective arrival time stamps, and the input of the audio data corresponding to the time required for inputting the second picture to the decoder can be completed by the time at which the input of the second picture to the decoder is started.

17. The recording medium according to claim 16, wherein

(I_max/Rv) × Ra is satisfied in the audio data corresponding to the time

required for inputting the second picture to the decoder, where I_max (bits) is a bit amount of the second picture, Rv (bps) is an input bit rate to a video buffer of the decoder, and Ra (bps) is a bit rate of audio data.

18. The recording medium according to claim 16, wherein the second picture is an intra-frame encoded image.

19. An information processing device that generates a multiplexed stream which includes a data stream constituted by a plurality of source packets each having a transport packet and its arrival time stamp, and which is read out and decoded by a decoder based on the arrival time stamp, comprising:

video encoding means for generating a first video encoding stream to end the presentation with a first picture and a second video encoding stream that starts the presentation with a second picture to be presented immediately after the first picture; and

multiplexing means for multiplexing the first video encoding stream and an audio encoding stream synchronized with the first video encoding stream to generate a first multiplexed stream, multiplexing the second video encoding stream and an audio encoding stream synchronized with the second video encoding stream to generate a second multiplexed stream, and generating a multiplexed stream in which a second picture, which is the first picture of a second multiplexed stream, is connected to a first picture, which is the last picture of a first multiplexed stream so as to be reproduced seamlessly, wherein

the multiplexing means multiplexes such that the input of the audio data corresponding to the time required for inputting the second picture to the decoder can be completed by the time at which the input of the second picture to the decoder is started.

20. The information processing device according to claim 19, wherein

(I_max/Rv) × Ra is satisfied in the audio data corresponding to the time required for inputting the second picture to the decoder, where I_max (bits) is a bit amount of the second picture, Rv (bps) is an input bit rate to a video buffer of the decoder, and Ra (bps) is a bit rate of audio data.

21. The information processing device according to claim 19, wherein the second picture is an intra-frame encoded image.

22. An information processing method that generates a multiplexed stream which includes a data stream constituted by a plurality of source packets each having a transport packet and its arrival time stamp, and which is read out and decoded by a decoder based on the arrival time stamp, comprising:

a step of generating a first video encoding stream to end the presentation with a first picture and a second video encoding stream that starts the presentation with a second picture to be presented immediately after the first picture; and

a step of multiplexing the first video encoding stream and an audio encoding stream synchronized with the first video encoding stream to generate a

first multiplexed stream, maltiplexing the second video encoding stream and an audio encoding stream synchronized with the second video encoding stream to generate a second multiplexed stream, and generating a multiplexed stream in which a second picture, which is the first picture of a second multiplexed stream, is connected to a first picture, which is the last picture of a first multiplexed stream so as to be reproduced seamlessly, wherein

multiplexing is performed in the multiplexing step such that the input of the audio data corresponding to the time required for inputting the second picture to the decoder can be completed by the time at which the input of the second picture to the decoder is started.